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United States  
Department of  
Agriculture

Soil  
Conservation  
Service

Spokane,  
Washington



# Water Supply Outlook for Washington

as of MAY 1, 1984





## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: "Spring is on its way"

### PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

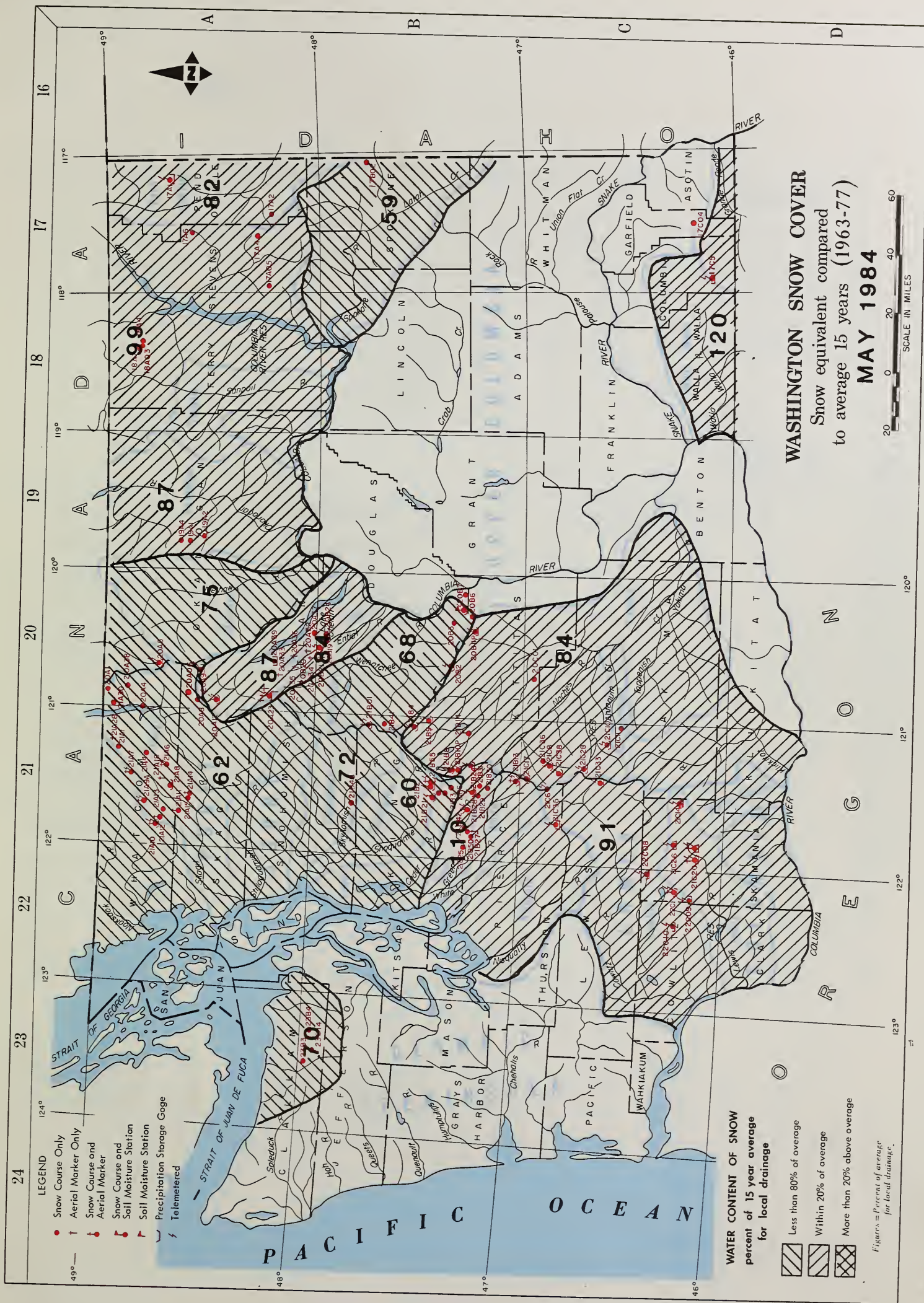
STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P.O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th St., Boise, Idaho 83702
Montana	P.O. Box 98, Bozeman, Montana 59715
Nevada	P.O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4402 Federal Bldg., 125 South State St., Salt Lake City, Utah 84147
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P.O. Box 2440, Casper, Wyoming 82601

### PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 — for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 — for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 — and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.









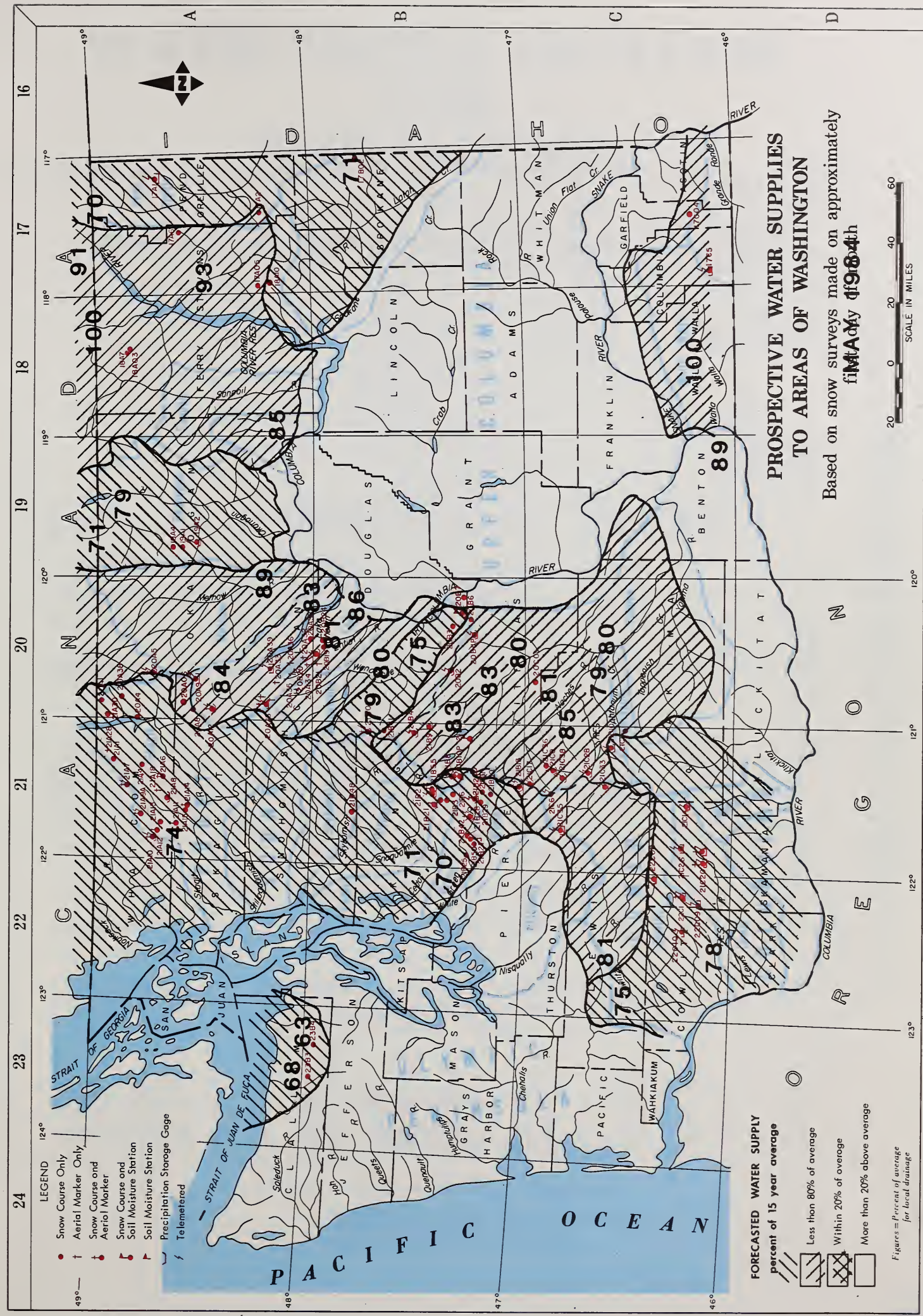
# INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

NAME	NUMBER	SEC.	TMP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TMP.	RANGE	ELEV.
UPPER COLUMBIA DRAINAGE						LOWER COLUMBIA DRAINAGE					
Pend Oreille River						Asotin Creek					
Boyer Mountain	17A2	7	31N	43E	5250	Spruce Springs	17C4	9	8N	40E	5700
Bunchgrass Meadow	17A1SP	24	37N	44E	5000	Touchet River					
Kettle River						Touchet No. 2	17C5SP	6	7N	40E	5530
Summit G. S.	18A7	20	39N	35E	4600	Lewis River					
Butte Creek	18A3	28	39N	35E	4070	June Lake	22C09SP	26	8N	5E	3200
Goat Creek	18A4	26	39N	35E	3595	Lane Pine Shelter	21C26SP	8	9N	7E	3800
Spokane River						Plains of Abraham	22C1SP	35	9N	5E	4400
Ragged Ridge	17B02	12	27N	45E	3333	Spencer Meadow	21C20SP	16	8N	7E	3400
Colville River						Surprise Lakes	21C13SP	14	7N	8E	4250
Bald	17A6	19	36N	42E	3215	Cowlitz River					
Stranger Mountain	17A5	26	31N	38E	4990	Coyuse Pass	21C6	15	16N	10E	5300
Chewelah	17A4	11	32N	41E	4925	Pigtail Peak	21C33SP	11	13N	11E	5900
Okanogan River						Potato Hill	21C14SP	36	10N	10E	4500
Mutton Creek No. 1	19A1	30	37N	24E	5700	Sheep Canyon	22C10SP	12	8N	4E	4050
Mutton Creek No. 2	19A4	19	37N	24E	6000	Strawberry	22C08SP	9	10N	6E	3280
Salmon Meadows	19A2SP	33	37N	24E	4300	Nisqually River					
Methow River						Paradise Park (New)	21C35SP	13	15N	8E	5500
Horts Pass	20A5SP	7	37N	18E	6500	White River					
Chelon Lake Bosin						Corral Pass	21B13SP	30	18N	11E	6000
Lyman Lake	20A23SP	18	31N	16E	5900	Green River					
Park Creek Ridge	20A12SP	18	34N	16E	4600	Airstrip	21B24P	18	20N	11E	1800
Rainy Pass	20A9SP	21	35N	17E	4780	Charley Creek	21B25	27	21N	8E	1200
Mirror Lake	20A39	30	31N	18E	5600	Cougar Mountain	21B42SP	21	21N	9E	3200
Entiat River						Grass Mountain No. 2	21B27	14	20N	8E	2900
Brief	20B19	34	28N	19E	1600	Grass Mountain No. 3	21B28	12	20N	8E	2100
Entiat Meadows	20A33a	28	31N	17E	4540	Lester Creek	21B29	36	20N	10E	3100
Entiat River Trail	20A34a	2	29N	17E	3325	Lynn Lake	21B50	22	20N	8E	4000
Fox Camp	20A36a	17	30N	18E	6510	Sawmill Ridge	21B31	5	19N	11E	4700
Pope Ridge	20B20	22	29N	18E	3540	Stampede Pass	21B10SP	25	21N	11E	3860
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540	Twin Camp	21B30	18	19N	11E	4100
Pugh Ridge	20A32a	34	30N	18E	6725	Cedar River					
Shady Pass	20A37	20	29N	19E	6200	City Cabin	21B3	10	21N	10E	2390
Snow Brushy	20A35a	21	30N	17E	3910	Mt. Gardner	21B21P	30	22N	10E	3300
Tommy Creek	20B21a	10	28N	18E	4900	Snoqualmie River					
Wenatchee River						Alpine Meadow	21B48	31	27N	9E	3500
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240	Ollalie Meadows	21B2P	19	22N	11E	3625
Blewett Pass No. 2	20B2SP	35	22N	17E	4270	Ollalie Meadows East	21B55SP	20	22N	11E	3700
Stevens Pass	21B1SP	14	26N	13E	4070	Skagit River					
Trough #2	20B25SP	10	20N	20E	5310	Beaver Creek Trail	21A4	35	39N	12E	2200
Squilchuck Creek						Beaver Pass	21A1	9	39N	12E	3680
Beehive Springs	20B3	12	21N	19E	4400	Brown Top	21A28a	26	40N	12E	6000
Stemilt Creek						Devils Fork	20A4	34	38N	16E	5900
Stemilt Slide	20B6	30	21N	20E	5000	Freezeout Creek Trail	20A1	14	40N	14E	3500
Upper Wheeler	20B7SP	30	21N	20E	4400	Freezeout Meadows (New)	20A38	8	40N	16E	5000
Yakimo River						Granite Creek	20A06	25	36N	16E	3500
Ahanum R. S.	21C11	24	12N	14E	3100	Meadows Cobins	20A8	29	36N	14E	1900
Big Boulder Creek	21B9SP	35	23N	14E	3200	New Hozomeen Lake	21A30	19	40N	14E	2800
Bumping Lake	21C8P	23	16N	12E	3450	Thunder Basin	20A07	10	35N	14E	4200
Bumping Lake New	21C36	13	16N	12E	3400	LEGEND					
Bumping Ridge	21C38SP	9	15N	12E	4600	21A7	Snow Course Only				
Fish Lake	21B4SP	28	24N	14E	3371	21A7a	Aerial Marker Only				
Green Lake	21C10SP	3	12N	13E	6000	21A7a	Snow Course And Aerial Marker				
Grouse Camp	20B11SP	29	21N	19E	5385	21A7m	Snow Course And Soil Moisture Station				
Lake Cle Elum	21B14M	15	20N	14E	2200	21A7p	Soil Moisture Station				
Morse Lake	21C17SP	6	16N	11E	5400	21A7p	Snow Course And Precipitation Storage Gage				
Tunnel Avenue	21B8P	13	21N	11E	2450	21A7SP	Precipitation Storage Gage				
White Pass (East Side)	21C28SP	2	13N	11E	4500	21A7SP	Snow Pillow				

## OLYMPIC PENINSULA

Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Elwaho River					
Hurricane	23B3	36	29N	7W	4500
Cox Valley					
	23B14	31	29N	6W	4500







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Spokane River					
Ragged Ridge	17B02	12	27N	45E	3333
Colville River					
Baird	17A6	19	36N	42E	3215
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Okanogan River					
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	4000
Salmon Meadows	19A2SP	33	37N	24E	4500
Methow River					
Harts Pass	20A5SP	7	37N	18E	6500
Chelan Lake Basin					
Lyman Lake	20A23SP	18	31N	16E	5900
Park Creek Ridge	20A12SP	18	34N	16E	4600
Rainy Pass	20A9SP	21	35N	17E	4780
Mirror Lake	20A39	30	31N	18E	5600
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Fox Camp	20A36a	17	30N	18E	4510
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Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38SP	9	15N	12E	4600
Fish Lake	21B4SP	28	24N	14E	3371
Green Lake	21C10SP	3	12N	13E	6000
Grouse Camp	20B11SP	29	21N	19E	5385
Lake Cle Elum	21B14M	15	20N	14E	2200
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Touchet River					
Touchet No. 2	17C5SP	6	7N	40E	5530
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Cougar Mountain	21B42SP	21	9E	3200	
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
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Twin Camp	21B30	18	19N	11E	4100
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City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Snoqualmie River					
Alpine Meadows	21B48	31	27N	9E	3500
Olallie Meadows	21B2P	19	22N	11E	3625
Olallie Meadows East	21B55SP	20	22N	11E	3700
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A2Ba	26	40N	12E	5900
Devils Fork	20A4	34	38N	16E	6000
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows (New)	20A38	8	40N	16E	5000
Granite Creek	20A06	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	21A30	19	40N	14E	2800
Thunder Basin	20A07	10	35N	14E	4200
Baker River					
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	3400
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500
OLYMPIC PENINSULA					
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
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LEGEND					
21A7	Snow Course Only				
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21A7M	Snow Course And Soil Moisture Station				
21A7P	Soil Moisture Station				
21A7P	Snow Course And Precipitation Storage Gage				
21A7SP	Precipitation Storage Gage				
21A7SP	Snow Pillow				



# **WATER SUPPLY OUTLOOK FOR WASHINGTON**

and

**FEDERAL-STATE-PRIVATE COOPERATIVE SNOW SURVEYS**

ISSUED BY

**PETER C. MYERS**

**Chief**

**SOIL CONSERVATION SERVICE  
WASHINGTON, D.C.**

RELEASED BY

**LYNN A. BROWN**

**STATE CONSERVATIONIST  
SOIL CONSERVATION SERVICE  
SPOKANE, WASHINGTON**

FORECASTS BY

**SOIL CONSERVATION SERVICE  
WATER SUPPLY FORECASTING STAFF, WNTC  
PORTLAND, OREGON**

and

**NATIONAL WEATHER SERVICE  
RIVER FORECAST CENTER  
PORTLAND, OREGON**

REPORT PREPARED BY

**WILLIAM F. WELLER, Hydrologist**

**JOLA L. MICKELSEN, Secretary**

**SOIL CONSERVATION SERVICE  
300 U.S. COURTHOUSE  
SPOKANE, WASHINGTON 99201**

# WORLD OF THE FUTURE

## THE FUTURE IS NOW

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## WATER SUPPLY OUTLOOK

State of Washington

May 1, 1984

The forecast's for water supply's for most of Washington continued much the same as last month. Water users in the Olympic's and the Puget Sound areas can expect below normal runoff this spring and summer. The mountain snowpack ranges well below average to average. There was some minor improvement in the snow cover over the Yakima river basin. It is below average in the Spokane, Pend Oreille, Wenatchee, Entiat and Methow Rivers. The Northwest Cascade slopes show well below average snowpack, with the Skagit having 62% of normal. Fall and winter precipitation was above normal in all sections of the state. Reservoir storage continues very good for May 1. Streamflow continued above average for the Kettle, Okanogan, Walla Walla and Columbia Rivers.

### SNOW COVER

Snow cover in the Puget Sound Watersheds is well below normal. It ranges from a low of 62% on the Skagit, to 110% on the White River. Olympic Peninsula streams are also below average with the Elwha and the Dungeness having a snowpack at 70% of normal. The other area of the state with much below average snowpack is the Spokane River drainage which has 59% of normal. The Entiat River snow courses showed some improvement increasing to 84% of average snow cover.

The Kettle River continues to be near average, as does the Cowlitz River. The Blue Mountain area of the state has the best snowpack being near 120%. All other areas in the state are between 80 and 90% of average.

### PRECIPITATION

April Precipitation was mixed over the state, with Northeastern Washington, Southeastern Washington and the Southwest Cascade being above average. Precipitation during the November-March winter period has been above average over the entire state except the Southwest Cascade area. During this period the Puget Sound area received 63.54 inches, 102% of normal. The Yakima area received 30.02 inches, 101% of normal. Precipitation in the northeastern area was 139% of normal.

### RESERVOIR STORAGE

May 1 stored water supplies continue very good, with all sections of the state reporting above average storage. The Yakima irrigation reservoirs are storing 991,000 acre feet of water compared to the April 1 average of 752,100, or 131% of normal. The reservoirs in the Okanogan Irrigation District are at capacity. Lake Chelan is at 261,700 acre-feet, 119% of normal.

### STREAMFLOW

Stream flows during April varied over the state. Streams which had above average runoff for March included the Kettle River at 166%, the Okanogan River at 123%, the Walla Walla River at 111% and the Columbia River at The Dalles 125%. Other streams in the state having below average flows were the Pend Oreille River at 84%, Spokane River at 98%, Yakima River at 93% and the Skagit River at 78%.

The Puget Sound rivers are still forecast below average, with the Skagit at 74%, the Cedar at 71% and the Dungeness at 63%. Forecasts for spring and summer streamflow will be within 20% of average over most of the state. The forecasts for the streams in the Yakima Basin remains nearly constant with 80% at Parker and Cle Elum. Some forecasts for the rest of the state are, the Wenatchee at 80%, the Methow at 89% and the Okanogan at 79%. The Spokane Rivers forecasts remain at 70%.



# STREAMFLOW FORECASTS - MAY 1984

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service. Streamflow figures for 1982 and 1983 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1984	Seasonal Streamflow in Thousands of Acre-Feet					
		%	Fore-	20-Yr.			
		20-Yr. Avg.	cast period	1983	1982	1981	Average 61-80

## COLUMBIA BASIN

### COLUMBIA RIVER SYSTEM    1/

Columbia River	40900	92	May-Sept	43225	48575	48531	44605
at Birchbank	32800	92	May-July	34569	38210	38501	35705
	23900	92	May-June	24281	27454	27002	26027
Columbia River	58000	87	May-Sept	46662	56425	70303	66841
at Grand Coulee	48500	86	May-July	34933	43821	58525	56169
	38300	87	May-June	26597	32610	44235	44036
Columbia River bl.	63800	88	May-Sept	44560	79386	77308	72781
Rock Island Dam	53700	87	May-July	58672	66629	64689	61601
	42400	88	May-June	69844	50985	49348	48384
Columbia River at	95200	94	May-Sept	103682	118503	96188	101000
The Dalles, OR	80600	93	May-July	88273	101631	81125	86500
	65200	93	May-June	70038	80122	63521	70100

### PEND OREILLE RIVER SYSTEM

Pend Oreille River	11600	75	May-Sept	12841	17721	13896	15425
bl. Box Canyon	10600	75	May-July	11482	16324	13179	14156
	9170	75	May-June	9226	13306	11594	12227

### KETTLE RIVER SYSTEM

Kettle River	1829	100	May-Sept	2709	2330	2184	1829
nr. Layruer	1738	100	May-July	2534	2174	2013	1738
	1581	100	May-June	2251	1747	1657	1581
Colville River	125	93	May-Sept	182	160	125	134
at Kettle Falls	115	93	May-July	161	146	111	123
	106	93	May-June	144	132	95	114

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeue d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Basin, Stream and Station	Forecast Runoff 1984	Seasonal Streamflow in Thousands of Acre-Feet					
		% 20-Yr. Avg.	Fore- cast Period	1983	1982	1981	20-Yr. Average 61-80
<u>SPOKANE RIVER SYSTEM</u>							
Spokane River <u>2/</u>	2020	71	May-Sept	M	M	2238	2848
at Post Falls, ID	1955	71	May-July	M	M	2145	2754
<u>OKANOGAN RIVER SYSTEM</u>							
Similkameen River	1040	71	May-Sept	1490	1638	1241	1462
nr. Nighthawk	970	71	May-July	1356	1491	1118	1365
	825	71	May-June	1155	1166	930	1161
Okanogan River	1300	79	May-Sept	2170	2046	1631	1644
nr. Tonasket	1180	79	May-July	1891	1712	1416	1497
	1000	79	May-June	1569	1306	1107	1262
<u>METHOW RIVER SYSTEM</u>							
Methow River	873	89	May-Sept	1354	1203	786	980
nr. Pateros	808	89	May-July	1243	1120	724	908
	583	89	May-June	1094	918	602	773
<u>CHELAN RIVER SYSTEM</u>							
Chelan River	1000	83	May-Sept	1261	1376	916	1203
at Chelan <u>3/</u>	876	83	May-July	1104	1223	798	1055
	686	83	May-June	901	958	621	826
Stehekin River	720	84	May-Sept	M	938	662	860
at Stehekin	611	84	May-July	727	800	543	727
	465	84	May-June	572	603	403	553
Entiat River	190	81	May-Sept	292	282	186	235
nr. Ardenvoir	173	81	May-July	263	258	168	213
	140	81	May-June	221	206	137	172
<u>WENATCHEE RIVER SYSTEM</u>							
Wenatchee River	1020	80	May-Sept	M	M	M	1270
nr. Plain	910	80	May-July	M	M	M	1136
	720	80	May-June	M	M	M	899
Wenatchee River	1370	80	May-Sept	1590	2013	1188	1712
at Peshastin	1235	80	May-July	1432	1791	1075	1545
	990	80	May-June	1191	1429	869	1237
Stemilt Basin	104*	75	May-Sept	M	M	M	**138
nr. Wenatchee							
Icicle Creek	291	79	May-Sept	M	M	M	**370
nr. Leavenworth	270	79	May-July	M	M	M	**340
	213	79	May-June	M	M	M	**270

\* Thousands of Miners' Inches

\*\* Average Computed for 1963-1977

2/ Forecasts made by Jerry Beard, Soil Conservation Service, Boise, Idaho.  
Observed flow corrected for storage in Coeur d'Alene Lake.

3/ Observed flow corrected for storage in Lake Chelan.



Basin, Stream and Station	Forecast Runoff 1984	Seasonal Streamflow in Thousands of Acre-Feet					
		% 20-Yr. Avg.	Fore- cast Period	1983	1982	1981	20-Yr. Average 61-80
YAKIMA RIVER SYSTEM							
Yakima River	116	83	May-Sept	109	152	95	139
nr. Martin <u>4/</u>	107	83	May-July	96	138	82	128
	93	83	May-June	81	121	73	111
Yakima River	754	80	May-Sept	733	1100	700	943
at Cle Elum <u>5/</u>	683	80	May-July	659	1010	643	854
	587	80	May-June	589	883	563	734
Yakima River	1680	80	May-Sept	2221	2434	1194	2096
nr. Parker <u>6/</u>	1520	80	May-July	1958	2193	1059	1898
	1330	80	May-June	1722	1909	961	1667
Kachess River	100	83	May-Sept	105	134	81	121
ne. Easton <u>7/</u>	95	83	May-July	96	126	72	115
	84	83	May-June	84	110	66	101
Cle Elum River	400	86	May-Sept	421	516	313	463
nr. Roslyn <u>8/</u>	365	86	May-July	381	468	282	422
	305	86	May-June	324	392	244	353
Bumping River <u>9/</u>	124	87	May-Sept	137	161	78	142
nr. Nile	112	87	May-July	128	147	70	129
	93	87	May-June	109	123	63	107
American River	103	83	May-Sept	M	140	63	124
nr. Nile	94	83	May-July	M	130	58	113
	78	83	May-June	M	109	51	94
Tieton River <u>10/</u>	210	85	May-Sept	M	M	148	246
at Tieton Dam	176	85	May-July	M	M	131	207
	140	85	May-June	M	M	108	165
Naches River <u>11/</u>	700	81	May-Sept	966	998	419	867
nr. Naches	635	81	May-July	881	945	380	784
	540	81	May-June	770	775	339	667
Ahtanum Creek <u>12/</u>	37	79	May-Sept	M	M	M	47
nr. Tampico	34	79	May-Sept	M	M	M	43
	29	79	May-June	M	M	M	37

4/ Observed flow corrected for stoage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and Diversion by Kittitas Canal.

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Rosa, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.

7/ Observed flow corrected for strage in Lake Kachess.

8/ Observed flow corrected for stoage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

10/ Observed flow corrected for storage in Rimrock Lake.

11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley wapatox Canals and City of Yakima.

12/ Observed flow of North and South Forks (contined).

Basin, Stream and Station	Forecast Runoff 1984	Seasonal Streamflow in Thousands of Acre-Feet					
		%	Fore-	20-Yr.			
		20-Yr. Avg.	cast Period	1983	1982	1981	Average 61-80

#### LOWER COLUMBIA RIVER SYSTEM

Mill Creek	17.5	100	May-Sept	13.48	24.62	28.5	**17.50
at Walla Walla	17.3	100	May-July	13.39	24.48	28.5	**17.33
	17.2	100	May-June	13.36	21.63	27.3	**17.15
Lewis River	974	78	May-Sept	1255	1170	1096	1249
at Ariel <u>13/</u>	847	78	May-July	1046	1030	971	1086
	750	78	May-June	821	927	865	961
Cowlitz River <u>14/</u>	1650	81	May-Sept	1935	4936	M	2038
bl. Mayfield Dam	1440	81	May-July	1754	1963	M	1778
	1220	81	May-June	1424	1722	M	1502
Cowlitz River <u>14/</u>	2000	75	May-Sept	2618	2655	2390	2673
at Castle Rock	1740	75	May-July	2195	2363	2125	2323
	1485	75	May-June	1739	2080	1875	1980

#### OLYMPIC PENINSULA

#### DUNCENESS RIVER SYSTEM

Dunceness River	100	63	May-Sept	197	196	109	160
nr. Sequim	82	63	May-July	158	163	88	130
	61	63	May-June	117	117	70	97

#### ELWHA RIVER SYSTEM

Elwha River	375	68	May-Sept	538	607	380	**553
nr. Port Angeles	308	68	May-July	448	512	316	**454

#### PUGET SOUND

#### SKAGIT RIVER SYSTEM

Skagit River	1874	74	May-Aug	1995	2248	2119	**2532
at Newhalem <u>15/</u>	1740	74	May-Sept	1531	1880	1773	**2356
	1460	74	May-July	1061	1439	1431	**1972
	1100	74	May-June	698	1004	1064	**1485

#### GREEN RIVER SYSTEM

Green River bl.	220	70	May-Sept	190	227	268	**316
Howard Hanson Dam <u>16/</u>	200	70	May-Sept	145	195	245	**284
	180	70	May-June	107	174	219	**256

#### CEDAR RIVER SYSTEM

Cedar River	66	71	May-Sept	66	80	74	**93
nr. Cedar Falls							

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift reservoirs.

14/ Observed flow corrected for storage in Riffe Lake and Mayfield Reservoir.

15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.

16/ Observed flow corrected for storage in Howard Hanson Dam.



# COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of washington stream basins presents the water content of the snow about April 1, 1984, as percent of the same date in 1983 and 1982 and average of record.

Tributary Basin	No. of Courses	1984 Snow Water Expressed		
		1983	1982	1961-80 Ave.
<u>UPPER COLUMBIA BASIN</u>				
Pend Oreille	11	86	63	82
Kettle	6	86	77	99
Colville				
Spokane	6	76	55	59
Okanogan	22	79	62	87
Methow	2	87	45	75
Chelan	3	103	67	87
Entiat	8	74	64	84
Wenatchee	8	106	41	68
Yakima	13	118	75	84
Antanum				
<u>LOWER COLUMBIA BASIN</u>				
Cowlitz	2	96	88	91
<u>PUGET SOUND</u>				
White	3		82	93
Green	5	166	101	110
Snoqualmie	1	250	59	60
Skykomish	2	110	69	72
Skagit	15	82	52	62
Baker	9	106		78
<u>OLYMPIC PENNINSULA</u>				
Morse	1	80	65	81
Elwha	1	81	63	64
Dungeness	1	50	45	53

# RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE <sup>1/</sup> CAPACITY	1984	Measured (April)		
				1983	1982	Normal*
<u>COLUMBIA</u>						
Spokane	Coeur d'Alene Lake	225.1	230.8	182.3	247.5	238.4
Columbia	Franklin D. Roosevelt Lake	5232.0	2222.3	523.4	412.9	867.8
Columbia	Banks Lake	714.9	405.6 <sup>2/</sup>	650.7	618.7	442.8
Okanogan	Conconully Reservoir	13.0	13.0	13.0	11.6	7.7
Okanogan	Conconully Lake	10.5	10.4	10.4	10.2	8.0
Chelan	Lake Chelan	676.1	261.7	281.0	201.8	219.0
<u>YAKIMA</u>						
Yakima	Keechelus Lake	157.8	147.0	139.6	152.8	113.8
Kachess	Kachess Lake	239.0	230.0	227.1	221.2	194.2
Cle Elum	Lake Cle Elum	436.9	403.0	393.2	184.4	295.9
Bumping	Bumping Lake	33.7	21.2	8.8	7.5	11.6
Tieton	Rimrock Lake	198.0	184.8	148.3	178.0	136.6
<u>PUGET SOUND</u>						
Skagit	Ross Reservoir	1404.1	801.1	656.8	632.1	711.5
Skagit	Diablo Reservoir	90.6	83.5	85.5	87.2	86.4
Skagit	Gorge Reservoir	9.8	8.2	8.4	8.0	8.1

<sup>1/</sup> Based on Active Storage

<sup>2/</sup> Banks Lake is being held down for construction at Dry Falls Dam.

\* 15-yr. Average 1963-1977



# PRECIPITATION 1/

## Division Average Observations and Departures

Drainage Divisions	Fall		Winter		Spring	
	Sept-Oct	1983 <u>2/</u>	Nov. 1983 - Mar. 1984 <u>2/</u>		April 1984	
	Observed	Departure	Observed	Departure	Observed	Departure
Northeastern Wash	1.55	-1.55	11.78	+2.38	1.92	-0.66
Southeastern Wash	2.54	-0.06	12.22	+1.79	1.73	+0.2
East Slope Cascades	3.76	-0.99	28.14	+0.61	1.90	-0.29
North Central Wash	1.45	-0.14	7.42	+0.88	0.72	-0.13
Northwest Cascades	7.97	-5.24	57.50	+2.11	5.64	-1.00
Southwest Cascades	5.36	-3.32	40.99	-0.65	4.74	+0.12

Northeastern Washington	- Lower Spokane, Colville, Sandpoil, and Lower Kettle Drainages
Southeastern Washington	- Touchet, Tucannon, and Palouse Drainages
East Slope Cascades	- Yakima, Wenatachee, and Chelan Drainages
North Central Washington	- Methow and Okanogan Drainages
Northwest Slope Cascades	- Puget Sound Drainages
Southwest Slope Cascades	- Lower Columbia Drainages

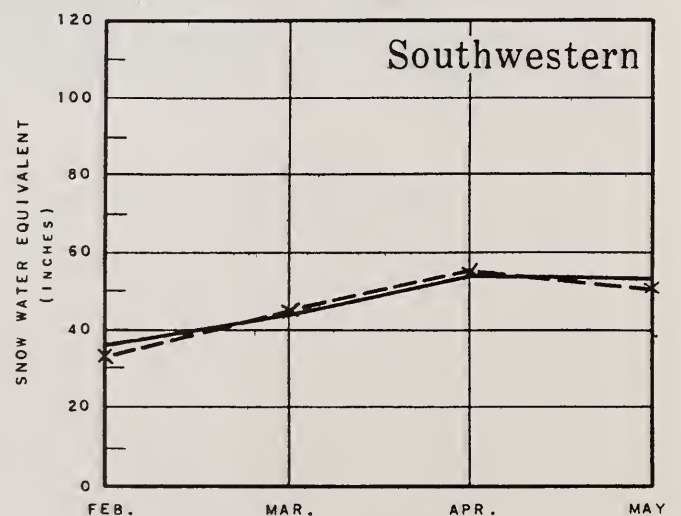
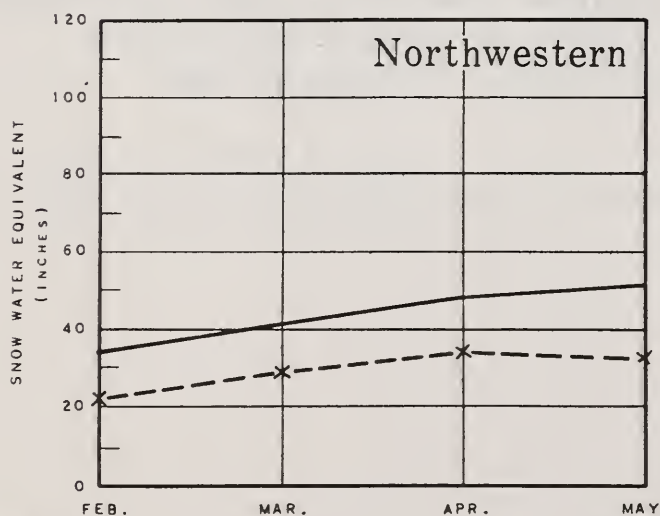
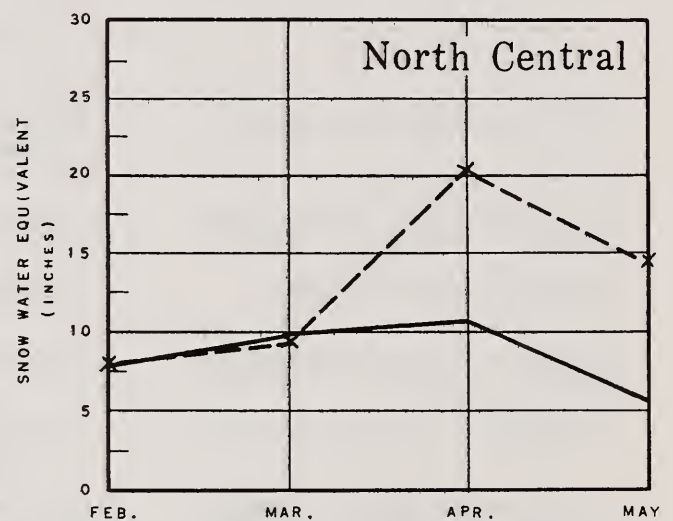
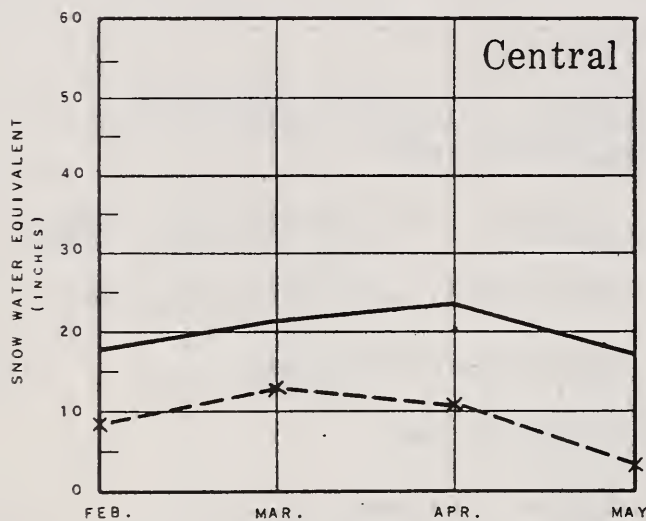
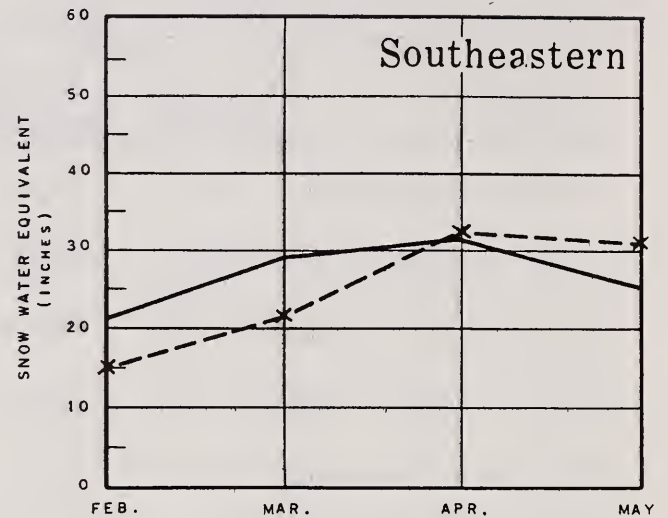
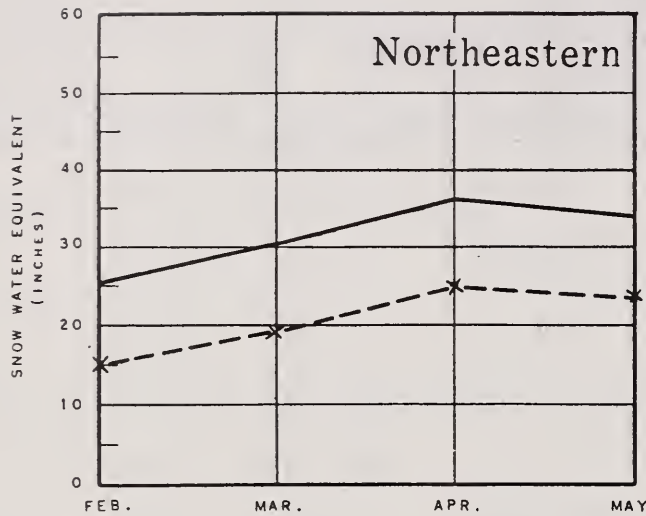
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and the National Weather Service.

2/ - Departure from 15-year (1958-1972) drainage division average.

# WASHINGTON SNOW COVER

1984

## DRAINAGE AREAS



**Average**  
**1984**

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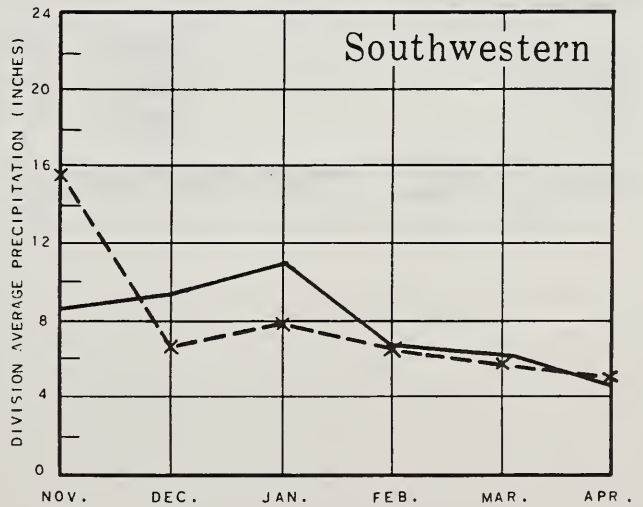
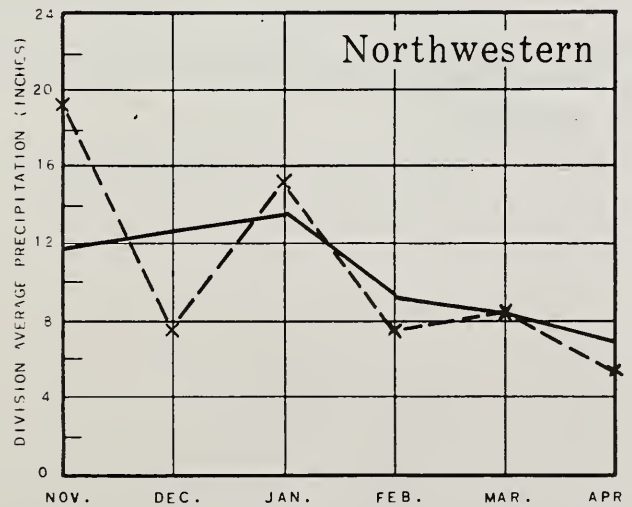
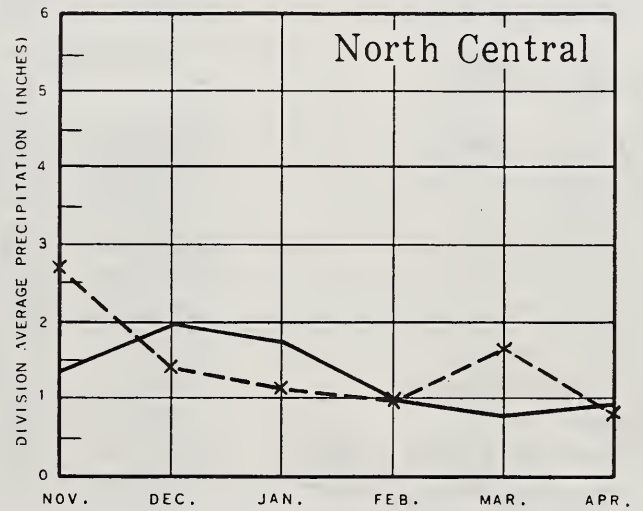
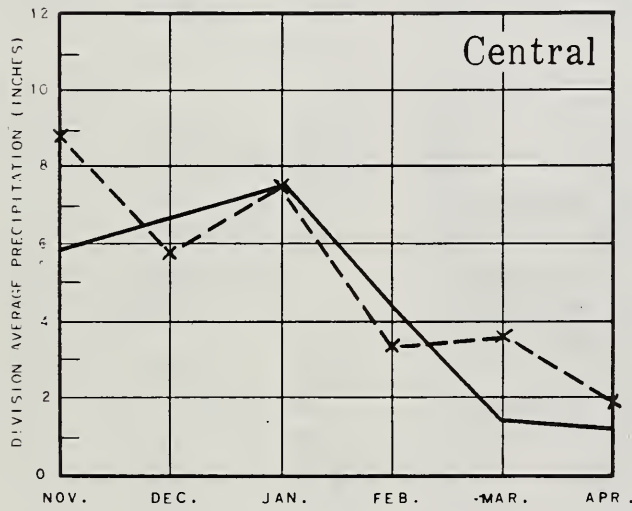
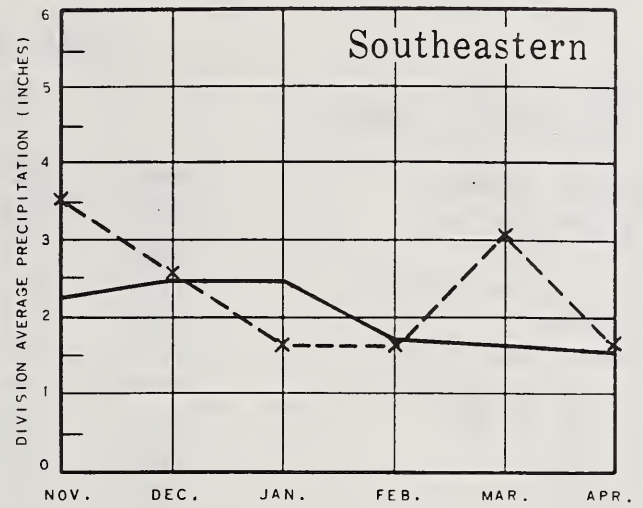
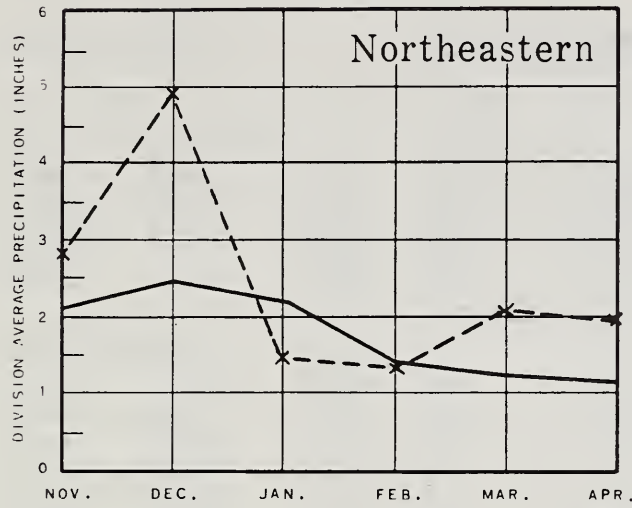
*Selected Snow Survey Courses by Soil Conservation Service*



# WASHINGTON VALLEY PRECIPITATION

1984

## DRAINAGE AREAS



**Average** ———  
**1984** -----

*Preliminary Analysis by National Weather Service*

**NOTE: Precipitation to end of month**

## SNOW DATA TO MAY 1, 1984 - APPENDIX 1

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average #

UPPER COLUMBIA DRAINAGEPEND OREILLE RIVER

Benton Meadow	16A02	2344	4/30	0	0.0	0.0	0.0
Benton Spring	16A03	4900	4/27	34	12.8	19.5	15.6
Boyer Mtn	17A02	5250	4/30	64	26.5	31.8	24.9
Bunchgrass Meadow	17A01	5000	5/02	68	28.2	40.9	29.0
Chewelah	17A04	4925	Not Measured				
Heart Lake Trail	14C10	4800	4/29	27	11.3	9.0	18.4
Hoodoo Basin	15C10	6000	4/29	98	42.8	45.7	54.5
Hoodoo Creek	15C01	5900	4/29	89	39.4	41.4	50.7
Lookout	15B02	5250	4/30	55	23.8	30.6	33.7
Nelson	2D04CA	3050	4/27	6	2.2	5.4	7.0
Schweitzer Bowl	16A06	4500	4/29	48	20.3	36.3	23.7
Schweitzer Ridge	16A05	6100	4/29	97	43.6	58.7	47.8

KETTLE RIVER

Barnes Creek	2B06CA	5300	4/27	54	20.9	19.2	20.7
Big White Mtn.	2E03CA	5500	4/28	57	21.8	25.7	21.1
Butte Creek	18A03	4070	Not Measured				
Carmi	2E02CA	4100	4/30	6	2.2	0.0	2.0
Farron #1	2B02CA	4000	Not Measured			13.6	9.4
Farron #2	2B02ACA	4000	Not Measured			14.2	9.2
Goat Creek	18A04	3595	Not Measured				0.0
Monashee Pass	2E01CA	4500	4/27	34	12.5	12.1	12.8
Summit G.S.	18A05	2150	Not Measured				5.8
Trapping Creek Lower	2E05CA	3050	4/29	0	0.0	0.0	0.0
Trapping Creek Upper	2E04CA	4450	4/29	11	4.3	4.7	6.0

COLVILLE RIVER

Baird	17A06	3215	Not Measured				
Chewelah	17A04	4925	Not measured				
Togo	18A10	3370	Not Measured				

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# Average based on 1961-1980 averages



## SNOW DATA TO MAY 1, 1984 - APPENDIX 2

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average #

SPOKANE RIVER

Above Burke	15B08	4100	4/30	25	9.8	13.4	19.9
4th of July Summit	16B03	3100	4/30	0	0.0	0.0	0.0
Lookout	15B02	5250	4/30	55	23.8	30.6	33.7
Mosquito Ridge	16A04	5110	Not Measured				
Sherwin	16C01	3200	4/30	3	1.4	0.0	5.5
Sunset	15B09A	5600	Not Measured				

NEWMAN LAKE

Ragged Ridge	17B02	3333	5/01	0	0.0	0.0	New
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OKANOGAN RIVER

Aberdeen Lake	1F01CA	4300	4/30	1	0.3	2.7	1.7
Blackwall Peak	2G03CA	6250	4/27	65	25.0	31.5	37.8
Brenda Mine	2F18CA	4800	Not Measured			12.0	9.9
Brookmere	1C01CA	3200	4/30	0	0.0	2.7	5.6
Enderby	1F04CA	6250	4/26	109	45.7	50.4	42.3
Esperon Creek Lower	2F15CA	4400	Not Measured				9.3
Esperon Creek Middle	2F15CA	4700	"	"			12.3
Esperon Creek Upper	2F13CA	5400	"	"			18.1
Grayback Reservoir	2F08CA	5225	4/27	32	9.8	10.9	8.0
Hamilton Hill	2G06CA	4900	4/26	20	6.3	12.4	13.2
Harts Pass	20A05A	6500	4/26	95	37.0	44.2	48.9
Isintok Lake	2F11CA	6300	4/29	18	5.1	4.5	7.1
Lost Horse Mountain	2G04CA	7000	Not Measured			9.7	10.5
McCulloch	2F03CA	4200	4/30	2	0.4	0.6	2.7
Missezula Mtn.	2G05CA	5100	4/27	14	4.3	8.6	6.0
Mission Creek	2F05CA	6000	Not Measured			24.3	21.7
Monashee Pass	2E01CA	4500	4/27	34	12.5	12.1	12.8
Mount Kobau	2F12CA	5960	4/29	55	16.9	20.1	12.8

# Average based on 1961-1980 averages

## SNOW DATA TO MAY 1, 1984 - APPENDIX 3

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average #

## OKANOGAN RIVER (CONT.)

Mutton Creek No. 1	19A01	5700	Not Measured				11.8
Mutton Creek No.2 SP	19A11	6000	Not Measured				New
Nickel Plate	2G02CAN	6200	4/29	28	8.0	8.3	8.1
Oyama Lake	2F19CAN	4400	4/26	11	3.1	3.9	3.1
Postill Lake	2F07CAN	4500	4/30	20	6.8	7.0	6.6
Rusty Creek	19A03	4000	4/26	0	0.0	2.5	0.7
Salmon Meadows	19A02	4500	Not Measured				5.0
Silver Star Mountain	2F10CAN	6050	4/29	74	30.7	36.8	28.3
Summerland Reservoir	2F02CAN	4200	4/29	16	5.9	6.4	5.8
Sunday Summit	2G01CAN	4300	4/26	0	0.0	0.0	1.1
Trout Creek	2F01CAN	4700	4/29	6	1.6	2.7	5.2
Vaseux Creek	2F20CAN	4600	4/30	20	6.4	7.6	2.5
White Rocks Mountain	2F09CAN	6000	4/30	59	23.4	29.0	24.8

## METHOW RIVER

Harts pass	20A05A	6500	4/26	95	37.0	44.2	48.9
Mutton Creek NO. 1	19A01	5700	Not Measured			16.1	11.8
Mutton Creek No. 2 SP	19A11	6000	Not Measured				New
Rusty Creek	19A03	4000	4/26	0	0.0	2.5	0.7
Salmon Meadows	19A02	4500	Not Measured			13.2	9.3

## CHELAN LAKE BASIN

Cloudy Pass +	20A22	6500	Not Measured				35.2
Lyman Lake	20A23	5900	5/01		68.8sp	62.0	82.0
Little Meadows +	20A24a	5275	Not Measured			37.6	37.6
Mirror Lake	30A39	5600	5/01		32.2sp		New
Park Creek Ridge	20A12	4600	5/01		34.7sp	36.0	31.7
Rainy Pass	20A09	4780	4/26	79	33.0	39.0	43.1

# Average based on 1961-1980 averages

+ Aerial stadia observation



## SNOW DATA TO MAY 1, 1984 - APPENDIX 4

**SNOW**

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average #

ENTIAT RIVER

Brief	20B19	1600	4/30	0	0.0	0.0	3.8
Entiat Meadows +	20A33	4540	5/03	66	27.1	46.9	35.7
Entiat River Trail +	20A34	3325	5/03	12	5.0	0.0	9.1
Fox Camp +	20A36	6510	5/03	138	60.7	72.7	62.9
Pope Ridge	20B20	3450	Not Measured			10.3	9.4
Pugh Ridge +	20A32	6725	5/03	81	30.8	47.8	37.9
Shady Pass	20A37	6200	4/30	69	25.6	33.8	30.3
Snow Brushy +	20A35	3910	5/03	66	27.7	32.4	28.0
Tommy Creek +	20B21	4900	5/03	33	14.5	17.0	20.2

WENATCHEE RIVER

Berne Mill Creek	21B23	3170	4/30	19	7.0	16.5	21.8
Berne Mill Creek SP	21B41	3240	4/30	19	7.0	9.1	17.7
Blewett Pass No. 2	20B02	4270	4/30	15	6.3	12.5	9.6
Chiwaukum G. S.	20B16	1810	4/30	0	0.0		1.5
Lake Wenatchee	20B05	1970	Watershed Logged Discontinued				
Lyman Lake	20A23	5900	5/01		68.8sp	62.0	82.0
Merritt	20B18	2140	4/30	0	0.0	.	5.5
Stevens Pass	21B01	4070	4/30	93	41.5	40.5	54.3
Stevens Pass Sand Shed	21B45	3700	4/30	56	22.7	22.0	34.5

COLOCKUM CREEK

Trough #2(SP)	20B25	5310	4/30	7	2.3	18.9	6.9
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+ Aerial stadia observation

# Average based on 1961-1980 averages

## SNOW DATA TO MAY 1 , 1984 - APPENDIX 5

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #
<u>SQUILCHUCK CREEK</u>							
Beehive Springs	20B03	4400	4/30	0	0.0	9.9	1.8
Scout-a-Vista	20B04	3400	Not Measured			0.0	0.3
<u>STEMILT CREEK</u>							
Stimelt Slide	20B06	5000	4/30	8	2.7		6.8
Upper Wheeler(SP)	20B07	4400	4/30	24	8.4	13.6	1.0
<u>YAKIMA RIVER</u>							
Ahtanum R.S.	21C11	3100	5/01	0	0.0	0.0	0.0
Big Boulder Creek	21B09	3200	4/30	20	8.5	11.3	9.1
Blewet Pass No. 2	20B02	4270	4/30	15	6.3	12.5	9.6
Bumping Lake Old	21C08	3450	4/13	32	10.8	8.1	9.0
			4/27	8	3.2	8.1	9.0
Bumping Lake New	21C36	3400	4/13	36	13.1	13.9	13.6
			4/27	20	8.4	13.9	13.6
Cayuse Pass	21C06	5300	4/27	184	83.0		90.6
Colockum Pass	20B09	5370	Not Measured				
Corral Pass	21B13	6000	5/01		8.1sp	19.2	37.7
Fish Lake	21B04	3371	4/30	47	19.8	29.6	26.4
Green Lake	21C10	6000	5/01		20.9sp	34.8	
Grouse Camp	20B11	5385	Not Measured			29.8	17.1
Lake Cle Elum	21B14	2200	5/01	0	0.0	0.0	5.5
Morse Lake	21C17	5400	5/01		65.2sp	80.5	60.9
Olallie Meadows	21B02	3625	4/28	63	30.2	12.8	50.1
Stampede Pass	21B10	3860	5/01	93	48.0	28.6	41.2
Tunnel Avenue	21B08	2450	4/11	34	12.2		15.4
			5/01	9	3.7		15.4
White Pass E. Side	21C28	4500	4/13	74	21.8	20.7	26.1
			4/26	59	23.4	20.7	26.1

# Average based on 1961-1980 averages  
 sp Snow Pillow Reading



## SNOW DATA TO MAY 1, 1984 - APPENDIX 6

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

AHTANUM CREEK

Ahtanum R. S.	21C11	3100	5/01	0	0.0	0.0	0.0
Green Lake	21C10	6000	Not Measured		20.9sp	34.8	

LOWER COLUMBIA DRAINAGEMILL CREEK

High Ridge SP	18D19	4890	4/30 GT	75	34.1	24.0	27.0
Touchet # 2 SP	17C55	5530	5/01		30.1sp	31.9	

COWLITZ RIVER

Cayuse Pass	21C06	5300	4/27	184	83.0		90.6
White Pass E. Side	21C28	4500	4/13	74	21.8	20.7	26.1
			4/26	59	23.4	20.7	26.1

PUGET SOUND DRAINAGEWHITE RIVER

Cayuse Pass	21C06	5300	4/27	184	83.0		90.6
Corral Pass	21B13	6000	5/01		28.4sp	19.2	37.7
Morse Lake	21C17	5400	5/01		65.2sp	80.5	60.9

GREEN RIVER

Airstrip	21B24	1800	4/29	0		0.0	
Charley Creek	21B25	1200	4/29	0		0.0	0.0
Cougar Mountain	21B42	3200	5/01		15.8sp	0.0	16.4
Grass Mtn. No. 2	21B27	2900	4/29	3	1.1	0.0	2.1
Grass Mtn. No. 3	21B28	2100	4/29	0		0.0	
Lester Creek	21B29	3100	4/29	25	14.0	5.0	14.5
Lynn Lake	21B50	4000	Not Measured			0.0	3.2
Sawmill Ridge	21B31	4700	4/29	73	29.2	22.0	
Stampede Pass	21B10	3860	5/01	93	48.0	28.6	41.2
Twin Camp	21C30	4100	4/29	43	17.8	10.8	13.5

# Average based on 1961-1980 averages  
sp Snow Pillow Reading

## SNOW DATA TO MAY 1, 1984 - APPENDIX 7

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average <sup>#</sup>

SNOQUALMIE RIVER

Olallie Meadows	21B02	3625	4/28	63	30.2	12.8	50.1
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SKYKOMISH RIVER

Stevens Pass	21B01	4070	4/30	93	41.5	40.5	54.3
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Stevens Pass Sand Shed	21B45	3700	4/30	56	22.7	22.0	34.5
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SKAGIT RIVER

Beaver Creek Trail	21A04	2200	4/26	0	0.0	0.0	5.5
Beaver Pass	21A01	3680	4/26	44	13.0	28.3	31.3
Brown Top Ridge	21A28	6000	4/26	131	53.2	50.4	67.5
Devils Park	20A04	5900	4/25	82	29.6	40.4	48.2
Freezeout Creek Trail	20A01	3500	4/26	4	1.1	4.9	8.4
Freezeout Meadows New	20A38	5000	4/26	51	19.4	37.1	35.8
Granite Creek	21A29	3500	4/26	16	5.4	7.3	18.2
Harts Pass	20A05A	6500	4/26	95	37.0	44.2	48.9
Klesilkwa	3D03ACA	3700	4/25	0	0.0	0.0	7.2
Lightning Lake	3D02CAN	4000	4/25	18	5.9	9.8	11.5
Lyman Lake	20A23	5900	5/01		68.8 <sup>sp</sup>	62.0	82.0
Meadow Cabins	20A08	1900	4/25	0	0.0	0.0	5.8
New Hozomeen Lake	21A30	2800	4/26	0	0.0	0.0	7.8
Rainy Pass	20A09	4780	4/26	79	33.0	39.0	43.1
Thunder Basin	20A07	4200	4/25	32	10.2	19.6	24.3

# Average based on 1961-1980 averages

sp Snow Pillow Reading

## SNOW DATA TO MAY 1, 1984 - APPENDIX 8

**SNOW**

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

BAKER RIVER

Dock Butte +	20A11A	3800	4/30	136	58.0	48.0	74.1
Easy Pass +	21A07A	5200	4/30	169	74.0	73.0	91.2
Jasper Pass +	21A06A	5400	4/30	182	76.0	85.	95.3
Martin Lake	21A09A	3600	4/30	158	68.0	68.0	81.0
Mt. Blum +	21A18A	5800	4/30	156	69.0	69.0	70.9
Rocky Creek	21A12A	2100	4/30	12	5.0	0.0	22.3
Schreibers Meadow	21A10A	3400	4/30	90	40.0	34.0	63.9
S.F. Thunder Creek +	21A14A	2200	4/30	0	0.0	0.0	1.5
Watson Lake	21A08A	4500	4/30	132	55.0	57.0	73.2

OLYMPIC PENINSULA DRAINAGEDUNGENESS RIVER

Deer Park	23B04	5200	4/30	28	12.0	25.4	22.5
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MORSE CREEK

Cox Valley	23B14	4500	4/29	77	34.4	45.8	42.0
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ELWHA RIVER

Hurricane	23B03	4500	4/27	43	16.5	22.2	25.6
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+ Aerial stadia observation

# Average based on 1961-1980 average



## SNOTEL READINGS, MAY 1, 1984 - APPENDIX 1

**SNOW**

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average #

PEND OREILLE RIVER

Bunchgrass Meadow	17A01	5000	4/15		30.7	39.5
	GT		5/02	83	29.2	27.12
			5/01		28.4	40.9

OKANOGAN & METHOW RIVERS

Harts Pass	20A05	6500	4/16		38.2	51.1
	GT		4/26	95	37.0	44.2
			5/01		39.9	50.5
Salmon Meadow	19A02	4500	4/16		19.9	33.3
			5/01		14.6	17.1

CHELAN LAKE BASIN

Lyman Lake	20A23	5900	4/15		68.9	68.7
	GT		5/01		68.8	64.0
Mirror Lake	20A39	5600	4/15		30.2	
	GT		5/01		32.2	
Park Creek Ridge	20A12	4600	4/18		35.6	49.5
			5/01		34.7	41.5
Rainy Pass	20A09	4780	4/15		34.4	47.0
	GT		4/26	79	33.0	39.0
			4/30		34.3	42.6

ENTIAT RIVER

Pope Ridge	20B20	3450	4/15		13.0	14.5
	GT		5/01		6.9	1.9

WENATCHEE RIVER

Blewett Pass	20B02	4270	4/15		18.8	21.0
	GT		4/26	25	9.4	12.5
			5/01		12.8	11.9
Lyman Lake	20A23	5900	4/15		68.9	68.7
	GT		5/01		68.8	64.0
Stevens Pass	21B01	4070	4/15		39.7	24.5
	GT		5/01		37.1	16.1
Trough # 2	20B25	5300	4/15		2.7	24.9
	GT		4/30		(2.5)	25.3
			5/01		0.4	18.9

GT = Ground Truth measurement at SNOTEL site

## SNOTEL READINGS, MAY 1, 1984 - APPENDIX 2

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average #

COLOCKUM CREEK

Trough # 2	20B25	5300	4/15		2.7	24.9
	GT		4/30	6	(2.5)	25.3
			5/01		0.4	18.9

STEMILT CREEK

Upper Wheeler	20B07	4400	4/15		14.6	19.6
	GT		4/30	38	(11.3)	16.8
			5/01		9.3	13.6

YAKIMA RIVER

Big Boulder Creek	21B09	3200	4/15		14.3	15.6
		GT	5/01		17.6	4.8
Bumping Ridge	21C38	4600	4/15		31.2	
			5/01		30.6	
Corral Pass	21B13	6000	4/15		10.5	24.4
			5/01		9.1	19.2
Fish Lake	21B04	3371	4/15		32.2	
			5/01		29.2	
Green Lake	21C10	6000	4/15		14.7	35.2
			5/01		20.8	34.8
Grouse Camp	20B11	5385	4/15		19.8.	29.4
			4/30		16.2	30.9
Morse Lake	21C17	5400	4/15		61.8	81.7
			5/01		65.2	80.5
White Pass E. Side	21C28	4500	4/15		26.6	23.9
			5/01		26.8	20.7

GT = Ground Truth measurement at SNOTEL site

## SNOTEL READINGS, MAY 1, 1984 - APPENDIX 3

**SNOW**

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

AHTANUM CREEK

Green Lake	21C10	6000	4/15		19.7	35.2
	GT		5/01		20.9	34.8

TOUCHET RIVER

Touchet # 2	17C5	5530	4/16		31.7	39.2
	GT		5/01		30.1	31.9

LEWIS RIVER

June Lake	22C09	3200	4/15			25.5
	GT		5/01			
Lone Pine Shelter	21C26	3800	4/15		40.0	46.8
	GT		5/01		39.8	42.5
Plains of Abraham	22C01	4400	4/15		94.7	
			5/01		99.6	
Sheep Canyon	22C10	4050	4/15		49.8	
			4/29		42.4	
Spencer Meadow	21C20	3400	4/15		25.1	32.0
			5/01			22.6
Surprise Lake	21C13	4250	4/16		59.6	58.7
	GT		5/01		58.0	51.8

COWLITZ RIVER

Pigtail Peak	21C33	5900	4/15		49.7	48.0
	GT		5/01		51.0	46.1
Potato Hill	21C14	4500	4/15		22.4	
	GT		4/30		20.5	
Sheep Canyon	22C10	4050	4/15		49.8	
			4/29		42.4	
Strawberry Landing	22C08	3280	4/15			40.2
	GT		5/01			37.9
Steppes PC	22C11		4/15		69.7	
			4/30			
Spirit PC	22C12		4/15		.6	
			4/30			

GT = Ground Truth measurement at SNOTEL sites



## SNOTEL READINGS, MAY 1, 1984 - APPENDIX 4

**SNOW**

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average #

NISQUALLY RIVER

Paradise Park	21C35	5500	4/20		18.0	
			5/01		16.6	

WHITE RIVER

Corral Pass	21B13	6000	4/15		10.5	24.4
	GT		5/01		8.1	19.2
Morse Lake	21C17	5400	4/15		61.8	81.7
	GT		5/01		63.2	80.5

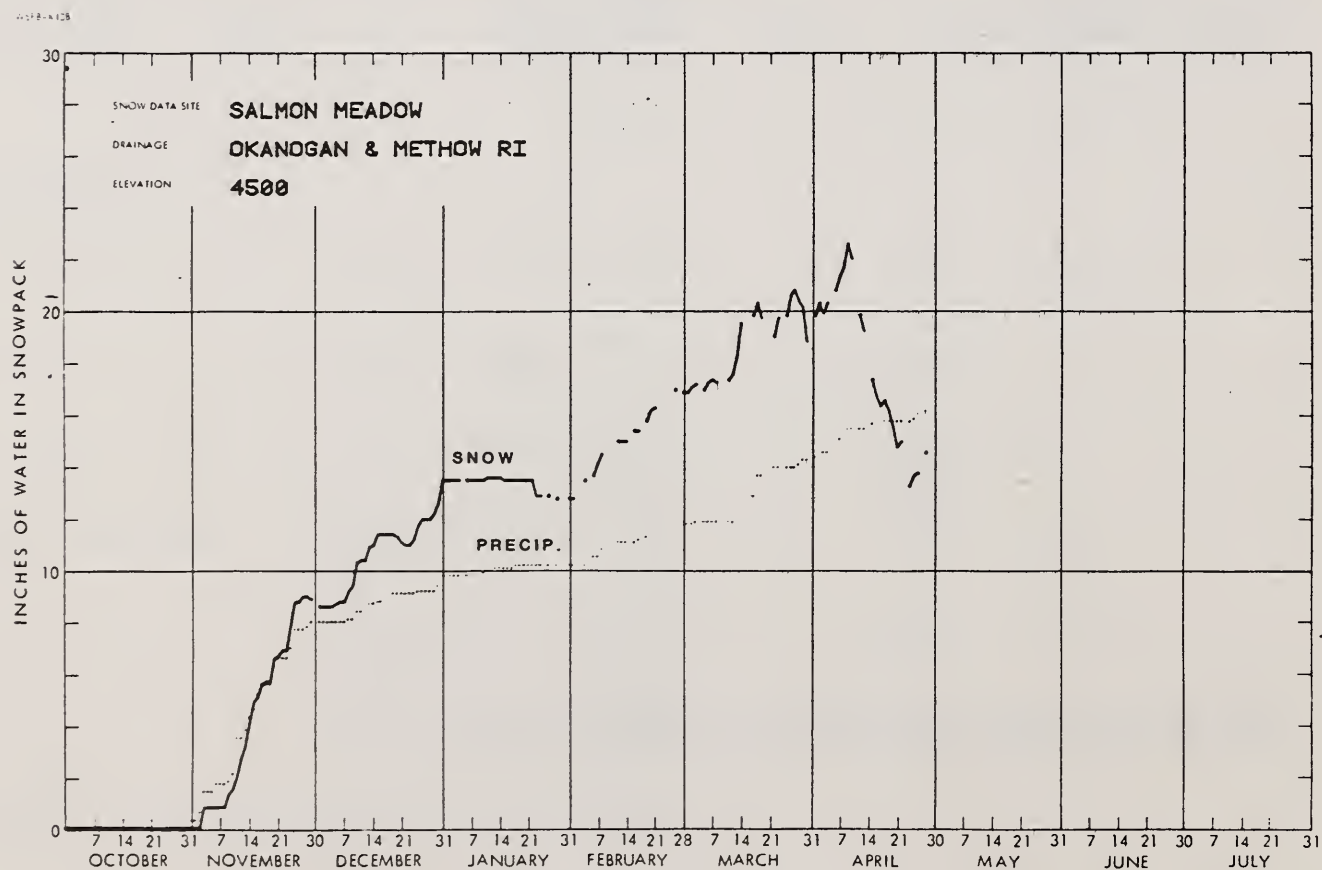
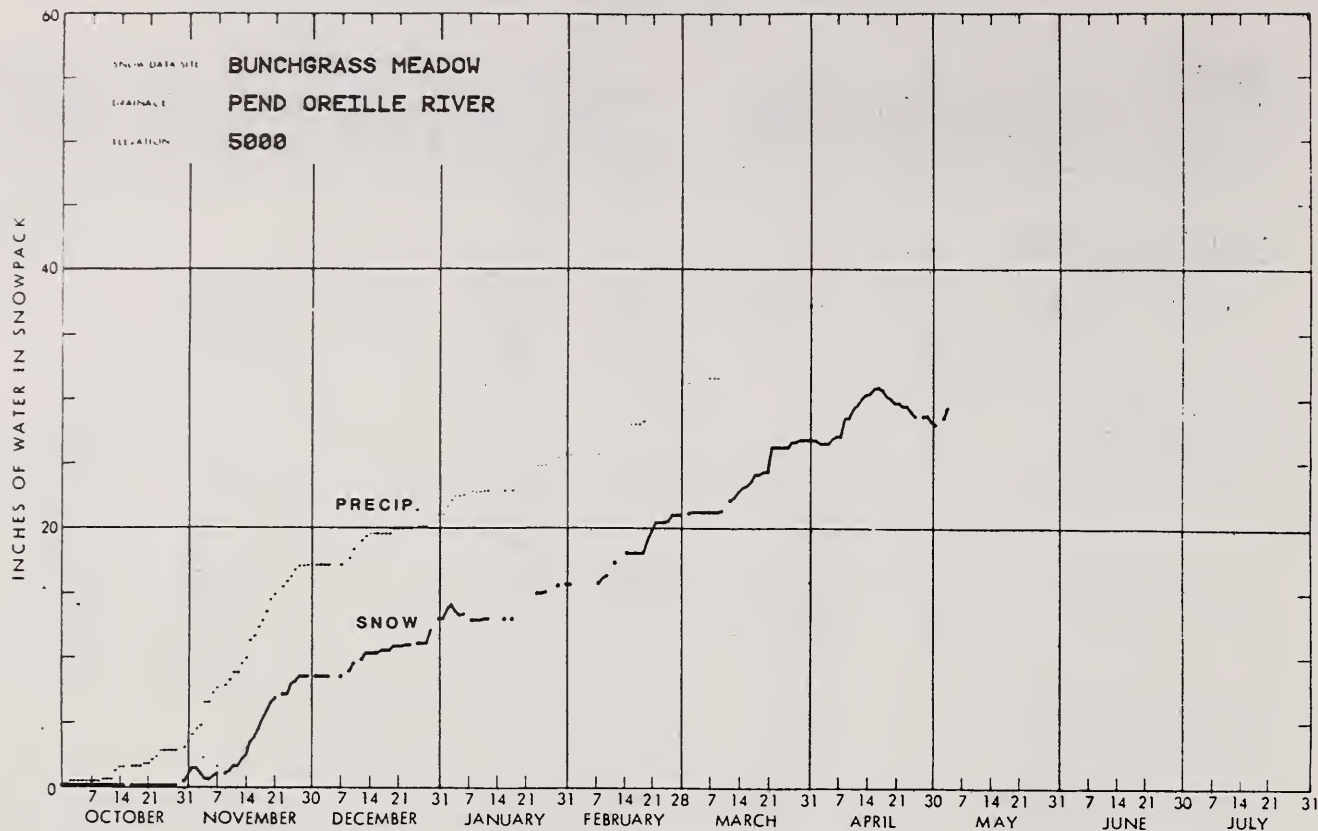
GREEN RIVER

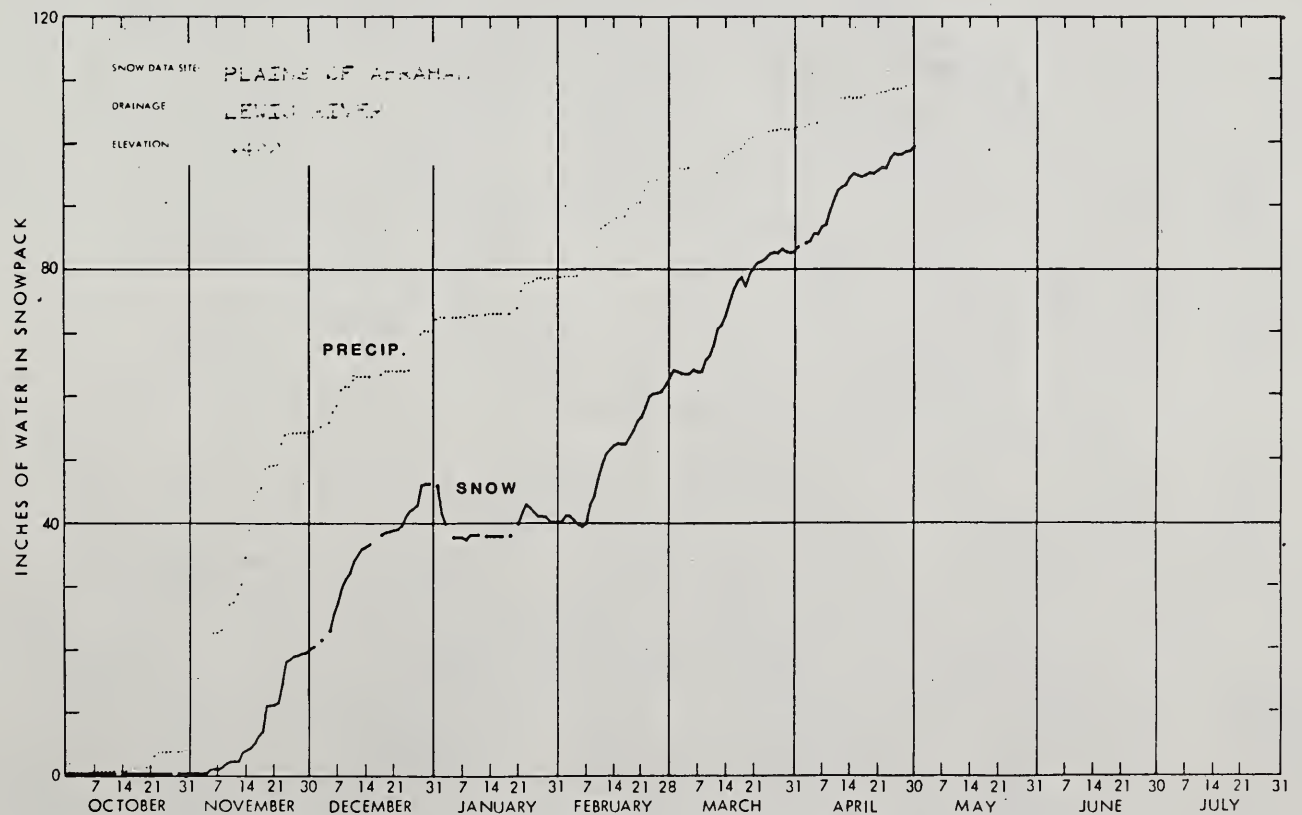
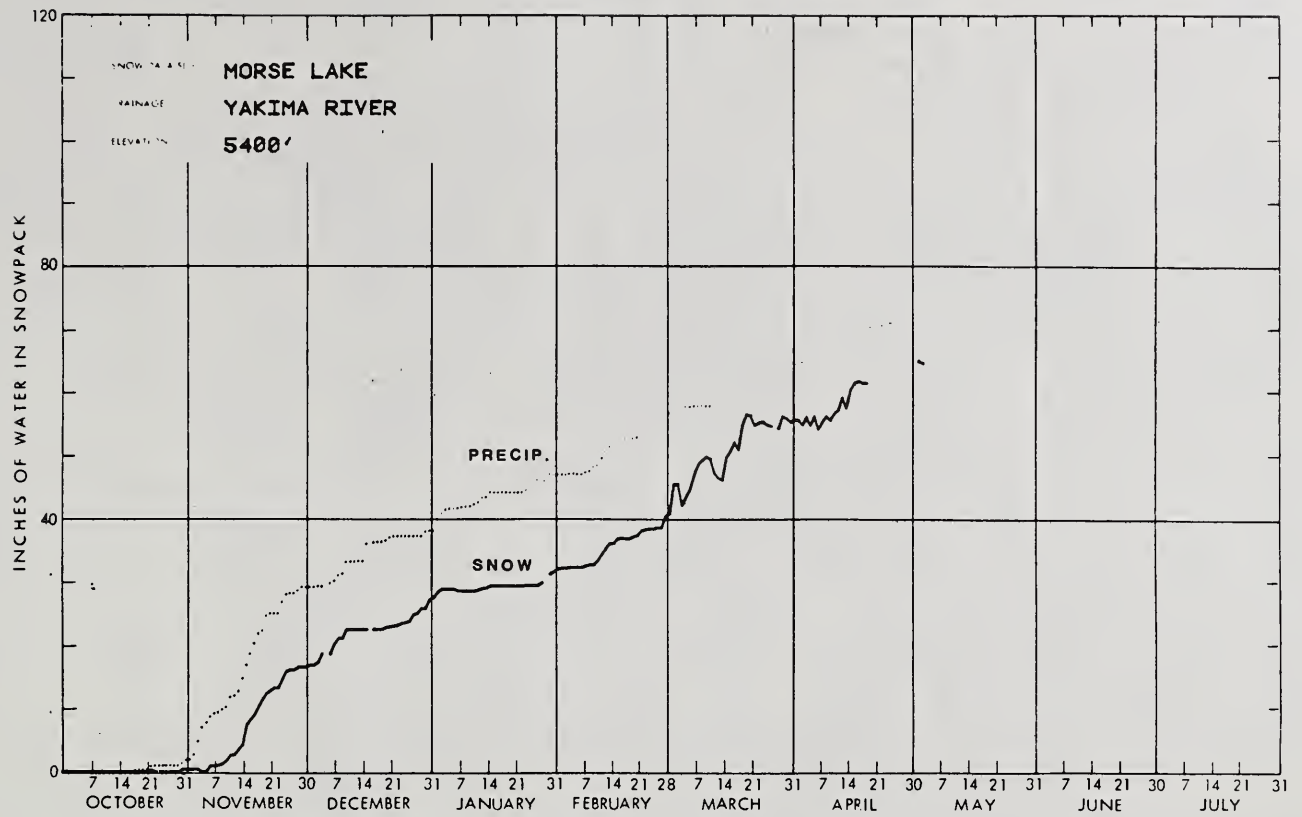
Cougar Mountain	21B42	3200	4/15		19.1	0.2
	GT		4/30		16.1	0.0
Stampede Pass	21B10	3960	4/15		48.0	39.4
	GT		5/01	93	48.0	35.0
			5/01		46.8	33.5

SNOQUALMIE RIVER

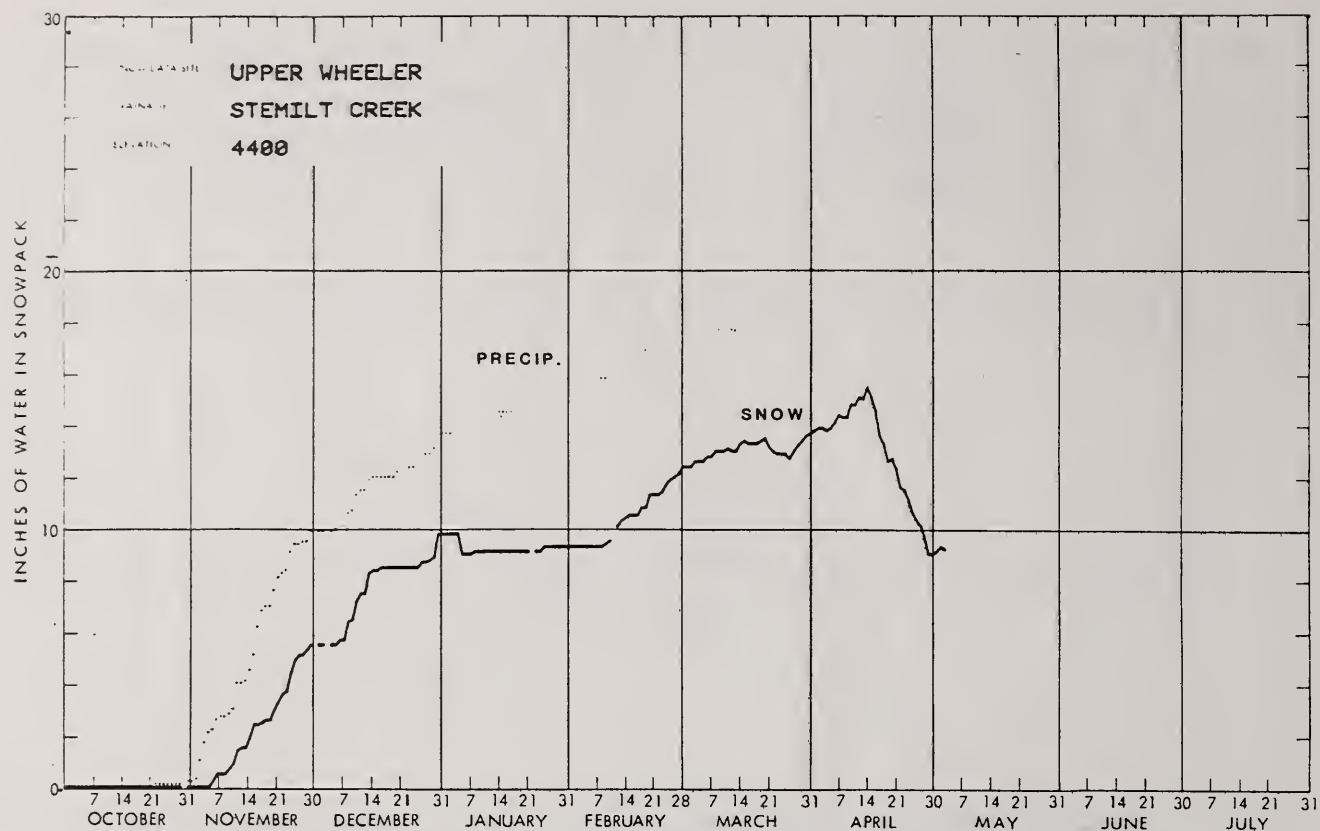
Olallie Meadows East	21B55	3960	4/14		57.4	51.6
			5/01		56.3	46.2

GT = Ground Truth measurements at SNOTEL sites









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